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10/695,078	10/28/2003	Abderrhamane Ounadjela	60.1543	4157

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Intellectual Property Law Department
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EXAMINER	
PHILLIPS, FORREST M	

ART UNIT	PAPER NUMBER
2837	

DATE MAILED: 04/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/695,078	OUNADJELA, ABDERRHAMANE	
	Examiner	Art Unit	
	Forrest M. Phillips	2837	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 October 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-47* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-47* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 6/21/04
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The abstract of the disclosure is objected to because it exceeds 150 words. Correction is required. See MPEP § 608.01(b).

Claim Objections

2. Claim 18 is objected to because of the following informalities: there appears to be a typographical error "a first reaction masses" has been read and treated as "a first reaction mass" . Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-4, 8-10,12-14,18-19, 23-25, 27, 31-36, 41-44 are rejected under 35 U.S.C. 102(b) as being anticipated by Paulsson (U.S.4715470)

With respect to claim 1, Paulsson discloses an acoustic borehole source for generating elastic waves through an earth formation comprising a first motorized reaction mass (42 in figure1) (column 1 line 55) positioned along the axis of a sonde; and at least two pads (66 in figure2)(column 3 line 14) are connected to said sonde and

first motorized reaction mass using a plurality of pushing rods(64 in figure 1) so that said pads generate elastic waves(column 3 lines 58-62) through said earth formation upon activation of said first motorized reaction mass.

With respect to claim 2 ,Paulsson further expressly discloses anchoring means(column 2 lines 58-59) to anchor said sonde in said borehole.

With respect to claim 3, Paulsson further discloses wherein at least two of said pads are used to anchor said sonde in said borehole(column 6 lines 51-53).

With respect to claim 4, Paulsson further discloses a receiver array (column 4 line 11) positioned along said sonde for receiving said elastic waves after said elastic waves have passed through a portion of said formation.

With respect to claim 8, Paulsson discloses an acoustic borehole source for generating elastic waves through an earth formation comprising a first reaction mass (342 a in figure 6) and a second motorized reaction mass (342b in figure 6)(column 6 lines 28-29) positioned along the axis of a sonde; at least two pads (66 in figure 2) wherein each of said at least two pads are connected to said first motorized reaction mass and second motorized reaction mass using a plurality of pushing rods (64 in figure 1) so that said pads generate elastic waves(column 3 lines 58-62) through said earth formation upon activation of at least one of said first and second reaction masses.

With respect to claim 9, Paulsson further discloses wherein said first and second motorized reaction mass are connected to opposite ends of each pad using said pushrods such that said pads move at an angle α relative to said axis (Figure 1).

With respect to claim 10, Paulsson further discloses a compression spring (346 in figure 6) (column 6 line 28-29) connecting said first and second motorized reaction masses.

With respect to claim 12, Paulsson discloses anchoring means (column 2 lines 58-59) to anchor said sonde in said borehole.

With respect to claim 13, Paulsson discloses wherein at least two of said pads are used to anchor said sonde in said borehole (column 6 lines 51-53).

With respect to claim 14, Paulsson further discloses a receiver array (column 4 line 11) positioned along said sonde for receiving said elastic waves after said elastic waves have passed through a portion of said formation.

With respect to claim 18, Paulsson discloses an acoustic borehole source for generating elastic waves through an earth formation (column 3 lines 58-62) comprising a first reaction mass (42 in figure 1)positioned along the axis of a borehole; at least two pads(66 in figure 2) wherein each of said at least two pads are connected to said first motorized reaction mass and said borehole using a plurality of pushing rods(64 in figure 1) so that said pads generate elastic waves though said earth formation upon activation of said first motorized reaction mass.

With respect to claim 19, Paulsson further discloses a receiver array (column 4 line 11) positioned along said borehole for receiving said elastic waves after said elastic waves have passed through a portion of said formation.

With respect to claim 23, Paulsson discloses expressly an acoustic borehole source for generating elastic waves through an earth formation comprising a first

motorized reaction mass (342 a in figure 6) and a second motorized reaction mass(342b in figure 6) positioned along the axis of a borehole; at least two pads (66 in figure 2) wherein each of said at least two pads are connected to said first motorized reaction mass using a plurality of pushing rods (64 in figure 1)so that said pads generate elastic waves (column 3 lines 58-62) through said earth formation upon activation of at least one of said first and second motorized reaction masses.

With respect to claim 24, Paulsson further discloses wherein said first and second motorized reaction mass are connected to opposite ends of each pad using said pushrods such that said pads move at an angle α relative to said axis (Figure 1).

With respect to claim 25, Paulsson further discloses a compression spring (346 in figure 6) (column 6 line 28-29) connecting said first and second motorized reaction masses.

With respect to claim 27, Paulsson further discloses a receiver array (column 4 line 11)positioned along said borehole for receiving said elastic waves after said elastic waves have passed along said borehole for receiving said elastic waves after said elastic waves have passed through a portion of said formation

With respect to claim 31, Paulsson expressly discloses a method of generating elastic waves (column 3 lines 58-62) through an earth formation comprising providing a sonde having an acoustic borehole source comprised of a first motorized reaction mass (42 in figure 1) positioned along the axis of said sonde and at least two pads (66 in figure 2) wherein each of said at least two pads are connected to said sonde and first motorized reaction mass using a plurality of pushing rods(64 in figure 1)

anchoring said sonde at a selected position within the borehole (column 2 lines 57-60) activating said first motorized reaction mass so that at least one of said at least two pads urges against said borehole wall to generate elastic waves into the formation (column 3 lines 54-62).

With respect to claim 32, Paulsson further discloses receiving (column 4 line 11) said elastic waves after said elastic waves have passed through a portion of said formation

With respect to claim 33, Paulsson further discloses anchoring said sonde comprises urging at least two of said pads against said borehole wall (column 6 line 51-53)

With respect to claim 34, Paulsson discloses a method of generating elastic waves through an earth formation (column 3 lines 58-62) comprising providing a sonde having an acoustic borehole source comprised of a first (342 a in figure 6) and second (342b in figure 6) motorized reaction masses positioned along the axis of said sonde and at least two pads (66 in figure 2) wherein each of said at least two pads are connected to said first motorized reaction mass and said second motorized reaction mass using a plurality of pushing rods (64 in figure 1);
anchoring said sonde at a selected position within the borehole (column 2 lines 57-60); preferentially activating said first or second motorized reaction masses so that at least one of said at least two pads urges against said borehole wall to generate elastic waves into the formation (column 6 lines 13-16).

With respect to claim 35, Paulsson further discloses coordinating the activation of said first or second motorized reaction masses so that at least one of said pads urges against said borehole wall at a predetermined angle α relative to the axis of said sonde (column 3 lines 54-62)(column 6 lines 12-14).

With respect to claim 36, Paulsson further discloses wherein anchoring said sonde comprises urging at least two of said pads against said borehole wall (column 6 lines 51-53).

With respect to claim 41, Paulsson discloses a method of generating elastic waves (column 3 lines 58-62) through an earth formation comprising positioning an acoustic borehole source along a borehole wherein said acoustic borehole source is comprised of a first motorized reaction mass (42 in figure 1) positioned along the axis of said borehole and at least two pads (66 in figure 2) wherein each of said at least two pads are connected to said sonde and said first motorized reaction mass using a plurality of pushing rods (64 in figure 1); and

activating said first motorized reaction mass (column 3 lines 58-62) so that at least one of said at least two pads urges against said borehole wall to generate elastic waves into the formation.

With respect to claim 42, Paulsson further discloses receiving (column 4 line 11) said elastic waves after said elastic waves have passed through a portion of said formation.

With respect to claim 43, Paulsson discloses a method of generating elastic waves through an earth formation comprising positioning an acoustic borehole source

along a borehole wherein said acoustic borehole source is comprised of a first (342 a in figure 6) and second (342b) motorized reaction masses positioned along the axis of said borehole and at least to pads (66 in figure 2), wherein each of said at least two pads are connected to said first motorized reaction mass and said second motorized reaction mass using a plurality of pushing rods(64 in figure 1);

preferentially activating said first or second motorized reaction masses so that at least one of said at least two pads urges against said borehole wall to generate elastic waves into the formation (column 6 lines 13-16).

With respect to claim 44, Paulsson further discloses coordinating the activation of said first and wherein said first and second motorized reaction mass are connected to opposite ends of each pad using said pushrods such that said pads move at an angle α relative to said axis (Figure 1).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claims 5,15,20 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Paulsson(U.S. 4715470) in view of Nakajima(U.S. 6315075).

Paulsson expressly discloses the borehole source of claim 1.

Paulsson does not expressly disclose said plurality of pushing rods are hingedly connected to the first reaction mass and the pads.

Nakajima expressly discloses (figure 1, prior art) a plurality of pushing rods (31, 32 in figure 1) hingedly connected to a sonde (29 in figure 1) and a pad (30 in figure 1).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to combine the hingedly connected anchoring pads of Nakajima with the borehole source of Paulsson.

The motivation for doing so would be to have a rigid connection between the reaction mass and the borehole wall, eliminating the vibrational absorption of the fluid filled pistons.

5. Claims 6-7,11,16-17,21-22,29-30,37-40,43-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Paulsson (U.S. 4715470) in view of Sakata (U.S. 5187331).

With respect to claim 6, Paulsson directly discloses the borehole source of claim 1.

Paulsson does not expressly disclose the weight of the motorized reaction masses are designed to accommodate a specific property wherein said source property is selected from the group consisting of radiation energy, frequency bandwidth and resonance frequency.

Sakata expressly discloses the weight of the motorized reaction masses are designed(column 4 lines 11-13)to accommodate a specific property wherein said source property is selected from the group consisting of radiation energy, frequency bandwidth and resonance frequency.

At the time of the invention it would have been obvious to one of ordinary skill in the art to combine the borehole source of Paulsson with the teachings of Sakata.

The motivation for doing so would be to have greater control of the frequencies emitted in different boreholes.

With respect to claim 7, Sakata further discloses (column 4 lines 11-13) wherein the stiffness of the motorized reaction masses are designed to accommodate a specific source property wherein said source property is selected from the group consisting of radiation energy, frequency bandwidth and resonance frequency.

With respect to claim 11, Sakata expressly discloses (column 5 lines 1-4) a third and fourth reaction mass.

With respect to claim 16, Sakata expressly discloses the weight of the motorized reaction masses are designed (column 4 lines 11-13) to accommodate a specific property wherein said source property is selected from the group consisting of radiation energy, frequency bandwidth and resonance frequency.

With respect to claim 17, Sakata further discloses (column 4 lines 11-13) wherein the stiffness of the motorized reaction masses are designed to accommodate a specific source property wherein said source property is selected from the group consisting of radiation energy, frequency bandwidth and resonance frequency.

With respect to claim 21, Sakata expressly discloses the weight of the motorized reaction masses are designed (column 4 lines 11-13) to accommodate a specific property wherein said source property is selected from the group consisting of radiation energy, frequency bandwidth and resonance frequency.

With respect to claim 26, Sakata expressly discloses (column 5 lines 1-4) a third and fourth reaction mass.

With respect to claim 29, Sakata expressly discloses the weight of the motorized reaction masses are designed (column 4 lines 11-13) to accommodate a specific property wherein said source property is selected from the group consisting of radiation energy, frequency bandwidth and resonance frequency.

With respect to claim 30, Sakata further discloses (column 4 lines 11-13) wherein the stiffness of the motorized reaction masses are designed to accommodate a specific source property wherein said source property is selected from the group consisting of radiation energy, frequency bandwidth and resonance frequency.

Sakata expressly discloses a fourth reaction mass (column 5 lines 1-4), and preferentially activating said first second third or fourth motorized reaction masses (column 5 line 4-9)

With respect to claim 38, Paulsson directly discloses (column 4 line 11) receiving said elastic waves after said elastic waves have passed though a portion of said formation.

With respect to claim 37, Paulsson further discloses (column 6 lines 51-53) wherein anchoring said sonde comprises urging at least two of said pads against said borehole wall.

With respect to claim 39, Paulsson further discloses coordinating the activation of said motorized reaction masses so that at least one of said pads urges against said borehole wall at a predetermined angle α relative to axis of said sonde (Figure 1).

With respect to claim 45, Sakata expressly discloses the use of a fourth mass (column 5 lines 1-4)

With respect to claim 46, Paulsson further discloses receiving said elastic waves (column 4 line 11) after said elastic waves have passed through a portion of said formation.

With respect to claim 47, Sakata directly discloses a fourth mass (column 5 lines 1-4)

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Laurent et al (U.S.4616703) device for anchoring a probe in a well by opening mobile arms; Staron et al (U.S.5382760) Seismic well source; Paulsson (U.S.4805725); Gregory et al. (U.S.5113966) Downhole hydraulic seismic generator. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Forrest M. Phillips whose telephone number is 5712729020. The examiner can normally be reached on Monday through Friday 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bradley Paula can be reached on 5712722001. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

FP

Edgardo San Martin
Primary Examiner